



Technical Specifications

MOBOTIX MOVE Vandal Multisensor PTZ Combo 20MP Video Analytics Camera

The MOBOTIX MOVE Vandal Multisensor PTZ Combo 20MP Video Analytics Camera incorporates four 5MP fixed-lens sensors plus one 5MP PTZ network camera with remote-controlled 21x zoom/focus lens for optimum positioning and alignment to the application needs. The camera provides four individual video-streams plus a combined stream of all four video streams for undistorted 360° views, making it ideally suited for surveillance of large areas or road intersections. Multiple sensor modules and the integrated AI-VMD analytics features enable the detection of vehicles and motion, as well as object tracking via the motorized PTZ unit.

- 4 x 5MP multi-directional camera + 2MP (1080p) 21x PTZ camera
- Fixed-focus lens 3.2 mm (<Multisensor>) and 21x motorized zoom/focus lens 4.0 to 84.6 mm (<PTZ>)
- WDR up to 144 dB
- Quad streaming H.264/H.265/MJPEG
- Intelligent encoding, smart low-bitrate control
- MOBOTIX MxMessageSystem
- ONVIF Profile S/G/T/M support
- Integrated AI-VMD analytics
- microSD/SDHC/SDXC card support up to 512 GB
- Audio Line In/Out
- PoE++ (IEEE802.3bt compliant) DC54 V: max. 35.6 W
- Operating temperature range -40 to 55 °C/-40 to 131 °F
- Outdoor protection rate IP66/IP67, IK10
- NDAA and NEMA 4x compliant
- Built-in FIPS 140-2 Level 3-certified TPM hardware/firmware



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Product Information

| | |
|--------------|--|
| Product Name | Vandal Multisensor PTZ Combo 20MP Video Analytics Camera |
| Order Code | Mx-VMSD1A-2021-VA |

Hardware Design

| | |
|-------------------------|--|
| Processor | <Multisensor>: Ambarella CV2 <PTZ>: Ambarella CV25m |
| Memory | RAM: 1 GByte FLASH: 256 MBytes |
| Image Sensors | <Multisensor>: 4 x 5MP 1/2.7” Progressive CMOS <PTZ>: 1 x 2MP (1080p) 1/2.8” Progressive CMOS |
| Effective (Used) Pixels | <Multisensor>: 2560x1920 (5MP) (per image sensor) <PTZ>: 1920x1080 (2MP) |

Image Quality

| | |
|---|--|
| Effective (Used) Pixels (per image sensor) | <Multisensor>: H x V = 2560x1920 (5MP) <PTZ>: H x V = 1920x1080 (2MP) |
| Pixel Size | 2.0 μm |
| Frame Rates (maximum) | <Multisensor> H.265/H.264: 5MP@15 fps MJPEG: 1080p@15 fps <PTZ> H.265/H.264: 2MP (1080p)@60 fps MJPEG: 1080p@60 fps |

Lens

| | |
|--------------|--|
| Optical Zoom | <Multisensor>: 1x <PTZ>: 21x (motorized zoom/motorized focus) |
| Digital Zoom | <Multisensor>: max. 4x (resolution 640x360) <PTZ>: max. 31x (resolution 1280x720) |

MOBOTIX MOVE Vandal Multisensor PTZ Combo 20MP Video Analytics Camera

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|--|---|
| Minimum Illumination | <Multisensor> Color: 0.12 lx (30IRE, F2.0, 1/30 s) Color: 0.17 lx (50IRE, F2.0, 1/30 s) BW: 0.10 lx (50IRE, F2.0, 1/30 s) <PTZ> Color: 0.011 lx (30IRE, F1.6, 1/30 s) Color: 0.015 lx (50IRE, F1.6, 1/30 s) BW: 0.006 lx (50IRE, F1.6, 1/30 s) |
| Focus Adjustment | <Multisensor> : – <PTZ> : Auto focus |
| Lens Characteristics (per image sensor) | <Multisensor> Focal length: 3.2 mm Aperture: F1.6 Field of view: horizontal 97°, vertical 71° Focus range: 1 m/3.28 ft to ∞ <PTZ> 21x motorized lens: zoom, focus Focal length: 4.0 to 84.6 mm Aperture: F1.6 (wide), F4.5 (tele) Field of view: horizontal 3.7 to 77°, vertical 2.2 to 44° Focus range: 1.5 m/4.92 ft to ∞ |

Camera

| | |
|-----------------------|--|
| Shutter Speed | <Multisensor> : 15 fps: 1/10000s to 16/30s <PTZ> : 15/30/60 fps: 1/4000s to 16/30s |
| Shutter Priority Mode | Up to 1/45s |
| Frame Rates (maximum) | <Multisensor> H.265/H.264: 5MP@15 fps MJPEG: 1080p@15 fps <PTZ> H.265/H.264: 2MP (1080p)@60 fps MJPEG: 1080p@60 fps |
| Auto Gain | Min. gain: 0 dB, max. gain: 11 dB, step size: 1 |

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MOBOTIX MOVE Vandal Multisensor PTZ Combo 20MP Video Analytics Camera

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|------------------------------------|--|
| WDR | <Multisensor>: 108 dB max. <PTZ>: 144 dB max. |
| White Balance | ATW1/ATW2/AWC |
| Back Light/High Light Compensation | BLC (Back light compensation)/HLC (High light compensation)/Off (only when Super Dynamic/Intelligent Auto: Off) |
| Fog Compensation | On/Off (only when Intelligent Auto/Auto Contrast Adjust: Off) |
| Maximum Gain (AGC) | Level 0 to 11 |
| Color/BW (ICR) | Off/On/Auto1(Normal)/Auto2(IR Light)/Auto3(SCC) |
| Digital Noise Reduction | Level 0 to 255 |
| Image Rotation | 180° |
| Adjusting Angles | <Multisensor> Camera 1,2,3,4: Vertical: 40 ±7° (adjust by vertical (TILT) angle) <PTZ> Horizontal: 360° endless panning Vertical: -15 to +195°/Yaw: 0° |

PTZ Features (<PTZ> Only)

| | |
|------------------|--|
| Preset Positions | 256 |
| Auto Mode | Auto track/Auto pan/Preset sequence/Patrol |
| Auto Return | 10 s/20 s/30 s/1 min/2 min/3 min/5 min/10 min/20 min/30 min/60 min |
| Pan Range | 360° endless |
| Tilt Range | -15° to +195° |
| Pan Speed | Manual Pan Speed: 0.065° to 150°/s Preset Pan Speed: Up to 500°/s |
| Tilt Speed | Manual Tilt Speed: 0.065° to 150°/s Preset Tilt Speed: Up to 500°/s |

MOBOTIX MOVE Vandal Multisensor PTZ Combo 20MP Video Analytics Camera

Video Codec

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|----------------------|---|
| Compression/Encoding | H.265/H.264/MJPEG |
| Streaming | Up to 4 individually configurable streams for MS and 1 combined stream in H.264/H.265/MJPEG Configurable resolution, frame rate, bandwidth CBR/VBR in H.265/H.264. |

Audio Codec

| | |
|----------------------|-------------------------|
| Compression/Encoding | G.711/G.726/AAC-LC |
| Streaming | Bi-directional |
| Audio Input | 3.5 mm stereo mini jack |
| Audio Output | 3.5 mm stereo mini jack |

Cyber Security Features

| | |
|--|--|
| Password Protection | Yes |
| IEEE 802.1X network access control | Yes (for advanced network security and authentication) |
| Digest authentication | Yes (for secure user authentication) |
| FIPS 140-2 Level 3 | Yes (NXP® EdgeLock® SE050F Trusted Platform Module: Certificate #3840) Security Level Exceptions: <ul style="list-style-type: none"> Physical Security: Level 4 |
| Secure Boot | Yes (support of fixed IP setting and automatic DHCP IP configuration according to individual MAC address) |
| AES encryption for password protection | Yes (to ensure strong encryption for password storage) |
| HTTPS/SSL (using TLS) | Yes |
| Digital Certificate | Yes, GlobalSign® device certificate pre-installed |
| User Authentication | Yes |
| Host Authentication | Yes |
| Alteration Detection | Yes |

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Network

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|---------------------|---|
| Interface | 10/100/1000 Mbps Ethernet |
| Supported Protocols | ARP, IPv6, ICMP, TCP, UDP, DHCPv6, SNMP, SMTP, RTP, HTTP, HTTPS, NTP, DNS, LLDP, MQTT, IEEE 802.1X, MLD |
| ONVIF Conformance | Supports profiles S/G/T/M |
| Supported Browsers | Microsoft Edge, Firefox, Google Chrome |
| Concurrent Users | <Multisensor>: 24 (depending on network load) <PTZ>: 14 (depending on network load) |

System Integration

| | |
|------------------------------|---|
| Video Motion Detection (VMD) | On/Off, up to 4 areas |
| Scene Change Detection (SCD) | On/Off, up to 1 area |
| Audio Detection | On/Off |
| AI Sound Classification | Selectable from Gunshot, Yell, Vehicle horn, Glass break |
| AI Analytics | <ul style="list-style-type: none">■ AI Video Motion Detection■ AI Privacy Guard■ AI Face Detection■ AI People Detection■ AI Vehicle Detection■ AI No-mask Detection■ AI Occupancy Detection■ AI Scene Change Detection |
| Alarm Sources | 3 input pins, VMD alarm, SCD alarm, Command alarm, Audio detection alarm |
| Alarm Actions | SD card recording, E-mail notification, HTTP alarm notification, Indication on browser, TCP alarm notification |
| Privacy Zones | <Multisensor>: On/Off, up to 8 zones <PTZ>: On/Off, up to 32 zones |

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|--------------------|--|
| VIQS | <Multisensor>: On/Off, up to 8 zones <PTZ>: On/Off, up to 8 zones |
| Camera Title (OSD) | On/Off, up to 40 characters, up to 2 Lines (alphanumeric and special characters) |

General

| | |
|--------------------------------|--|
| Housing Materials | Main body: Aluminum die cast, white Outer fixing screws: stainless steel (corrosion-resistant treatment) Dome cover: PC resin, clear |
| Power Requirements | PoE++ (IEEE802.3bt compliant): DC 54 V: 0.66 A/max. 35.6 W (Class 5 device) |
| Connectors | <ul style="list-style-type: none"> Network: 10 BASE-T/100 BASE-T/1000 BASE-T, RJ45 connector Audio input: 3.5 mm stereo mini jack Audio output: 3.5 mm stereo mini jack Alarm I/O: 3x Alarm in, 2x Alarm out |
| Video Storage | microSD SDHC/SDXC card support up to 512 GB Support for recording to NAS, MOBOTIX HUB, MOBOTIX MOVE NVR |
| Remotely Upgradable | Yes |
| Environmental Protection Class | IP66/IP67/IK10, Type 4X (UL50E), NEMA 4X-compliant |
| Operating Temperature | –40 to +55 °C/–40 to 131 °F (Power On range: –20 to +55 °C/–4 °F to 131°F) Maximum temperature according to NEMA TS 2 (2.2.7): 74°C/165°F |
| Relative Humidity | 10 to 100 % non-condensing (using Temish element to protect against condensation) |
| Approvals | EMC: FCC (Part15 ClassA), ICES-003 ClassA, EN55032 ClassA, EN55024 Safety: UL (UL62368-1), c-UL (CSA C22.2 No.62368-1), CE, IEC62368-1 IT Security: FIPS 140-2 Level 3-certified (using certified TPM chipset) |
| Other Supported Standards | NEMA TS 2 (2.2.7-2.2.9) |
| Warranty | 5 years; mechanically wearable parts (motor, gears, belts, etc.) excluded |

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|------------|----------------|
| Dimensions | ø 250 x 195 mm |
| Weight | 3800 g |

NOTE! Observe the [MOBOTIX MOVE Installation Hints](#) document to ensure optimum performance of the camera features.

DORI Specifications

In the video surveillance context, “DORI” stands for Detection, Observation, Recognition and Identification and is based on IEC EN62676-4: 2015. These levels define the minimum pixels that a face of a person must have to provide proper identification, for example.

- **Detection:** Up to this distance, you can reliably determine if a person or vehicle is present.
- **Observation:** Up to this distance, you can see characteristic details of an individual, such as distinctive clothing.
- **Recognition:** Up to this distance, you can determine with a high degree of certainty whether an individual is the same as someone that has been seen before.
- **Identification:** Up to this distance, you can determine the identity of an individual beyond reasonable doubt.

Multisensor Cameras

| DORI Level | Detection | Observation | Recognition | Identification |
|-------------------|-----------------|----------------|---------------|----------------|
| Mx-VMSD1A-2021-VA | 45.3 m/148.6 ft | 18.1 m/59.4 ft | 9.1 m/29.7 ft | 4.5 m/14.9 ft |





PTZ Camera

| DORI Level | Detection | | Observation | | Recognition | | Identification | |
|-------------------|---------------------|------------------------|--------------------|-----------------------|-------------------|----------------------|-------------------|----------------------|
| Order Code: | Wide | Tele | Wide | Tele | Wide | Tele | Wide | Tele |
| Mx-VMSD1A-2021-VA | 48.3 m/ 158.4 ft | 1188.9 m/ 3900.5 ft | 19.3 m/ 63.4 ft | 475.5 m/ 1560.2 ft | 9.7 m/ 31.7 ft | 237.8 m/ 780.1 ft | 4.8 m/ 15.8 ft | 118.9 m/ 390.0 ft |

Accessories

| Picture | Order Code | Description |
|---|---------------|--|
|  | Mx-M-VMSD-IC | In-Ceiling Flush Mount for Vandal Multisensor PTZ Combo 20MP Video Analytics Camera |
|  | Mx-M-VMSD-AP | Adapter Mounting Plate Vandal Multisensor PTZ Combo 20MP Video Analytics Camera (use with Mx-M-SD-GN, Mx-M-SD-PM/PMEXT, Mx-M-SD-W, Mx-M-SD-WM) |
|  | Mx-M-SD-C | Corner Mount |
|  | Mx-M-SD-GN | Parapet Mount (Gooseneck) with integrated junction box |
|  | Mx-M-SD-P | Pole Mount |
|  | Mx-M-SD-PM | Pendant Mount Kit 25 cm |
|  | Mx-M-SD-PMEXT | Pendant mount extension 25 cm for use with Pendant Mount Kit Mx-M-SD-PM |
|  | Mx-M-SD-W | Wall Mount; can be combined with Pole Mount Mx-M-SD-P or Corner Mount Mx-M-SD-C |

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| Picture | Order Code | Description |
|---|---------------------|--|
|  | Mx-M-SD-WM | Wall Mount with room for optional junction box |
|  | Mx-M-SD-WMJB | Wall Mount Junction Box |
|  | Mx-NPA-PoE1A-60W-BT | Network Power Injector 60 W |
|  | Mx-A-ETP1A-2601-SET | Media Converter Set Ethernet (PoE+) – Twisted-Pair |

Dimensions

NOTE! Download the drilling template from the section or on the MOBOTIX website: www.mobotix.com > [Support > Download Center > Marketing & Documentation > Drilling Templates](#).

CAUTION! Always print or copy the drilling template at 100% of the original size!

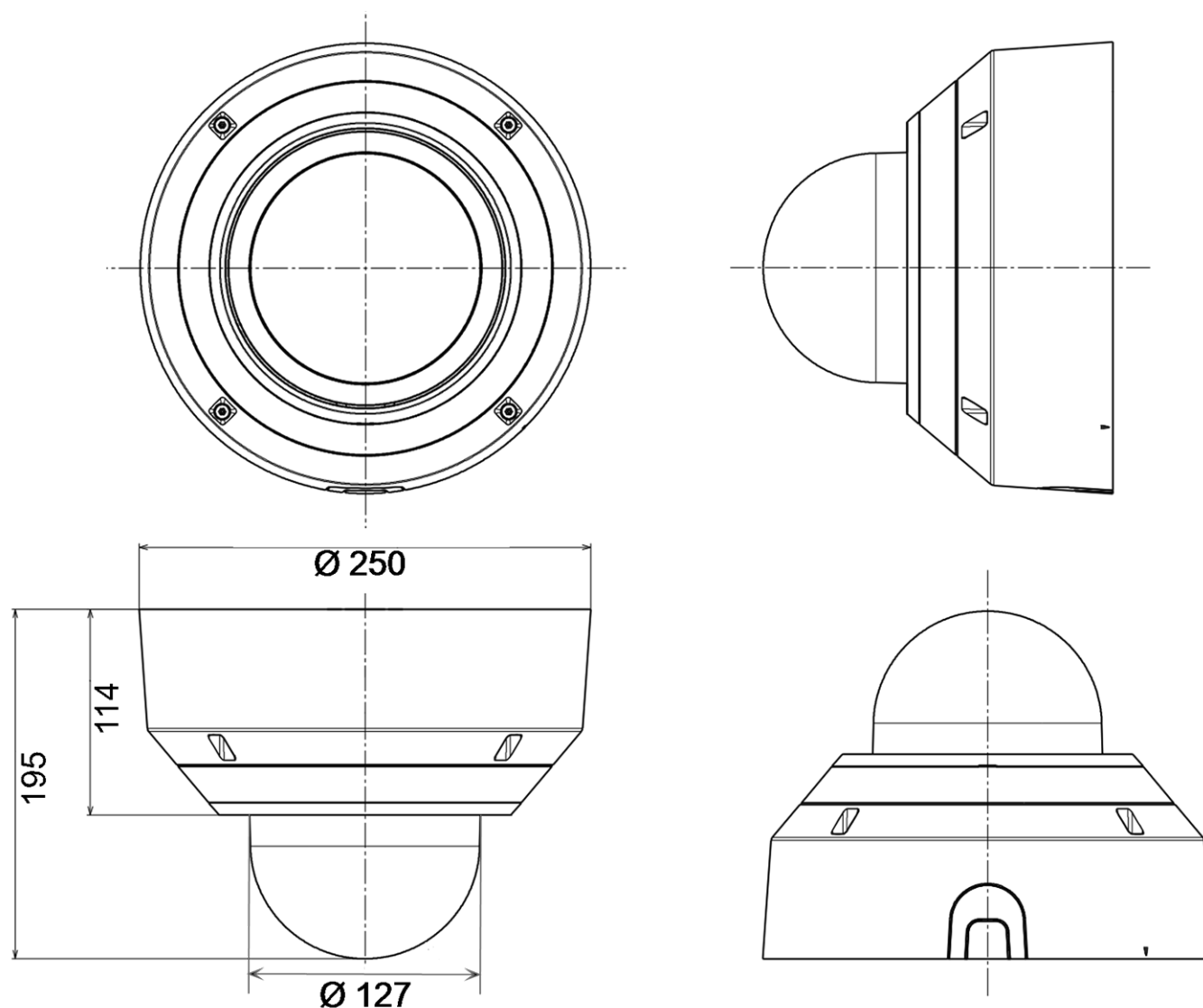


Fig. 1: Vandal Multisensor PTZ Combo 20MP Video Analytics Camera: All measurements in mm

Further Reading

[Manuals and Quick Installation documents](#)



[Technical Specifications](#)



[MOBOTIX MOVE Installation Hints](#)



[MOBOTIX Community](#)



