



# 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 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
- MOBOTIXMxMessageSystem
- 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

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## Image Quality

Image Sensors	<Multisensor> 4 x 5MP: 1/2.7" CMOS <PTZ> 1 x 2MP (1080p): 1/2.8" CMOS
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)	<b>&lt;Multisensor&gt;</b> H.265/H.264: 5MP@15 fps MJPEG: 1080p@15 fps <b>&lt;PTZ&gt;</b> H.265/H.264: 2MP (1080p)@60 fps MJPEG: 1080p@60 fps

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## Hardware Design

Processor	<Multisensor>: Ambarella CV2 <PTZ>: Ambarella CV25m
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## Lens

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

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

**Camera**

Shutter Speed	<p>&lt;Multisensor&gt;: 15 fps: 1/10000s to 16/30s</p> <p>&lt;PTZ&gt;: 15/30/60 fps: 1/4000s to 16/30s</p>
Shutter Priority Mode	Up to 1/45s
WDR	<p>&lt;Multisensor&gt;: 108 dB max.</p> <p>&lt;PTZ&gt;: 144 dB max.</p>
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)

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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	<b>&lt;Multisensor&gt; Camera 1,2,3,4:</b> Vertical: 40 ±7° (adjust by vertical (TILT) angle) <b>&lt;PTZ&gt;</b> 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

### Video Codec

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.

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**MOBOTIX MOVE Vandal Multisensor PTZ Combo 20MP Video Analytics Camera**

**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"> <li>▪ Physical Security: Level 4</li> </ul>
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

**Network**

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

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Supported Browsers	Microsoft Edge, Firefox, Google Chrome
Concurrent Users	<Multisensor>: 24 (depending on network load) <PTZ>: 14 (depending on network load)

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## 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"><li>■ AI Video Motion Detection</li><li>■ AI Privacy Guard</li><li>■ AI Face Detection</li><li>■ AI People Detection</li><li>■ AI Vehicle Detection</li><li>■ AI No-mask Detection</li><li>■ AI Occupancy Detection</li><li>■ AI Scene Change Detection</li></ul>
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
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)

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**MOBOTIX MOVE Vandal Multisensor PTZ Combo 20MP Video Analytics Camera**

**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"> <li>▪ Network: 10 BASE-T/100 BASE-T/1000 BASE-T, RJ45 connector</li> <li>▪ Audio input: 3.5 mm stereo mini jack</li> <li>▪ Audio output: 3.5 mm stereo mini jack</li> <li>▪ Alarm I/O: 3x Alarm in, 2x Alarm out</li> </ul>
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
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-VMUSD1A-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	
	Wide	Tele	Wide	Tele	Wide	Tele	Wide	Tele
Mx-VMUSD1A-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 for MOBOTIX MOVE Speed Dome cameras (only in combination with Wall Mount Mx-M-SD-W/WM)
	Mx-M-SD-GN	Parapet Mount (Gooseneck) with integrated junction box for MOBOTIX MOVE Speed Dome cameras
	Mx-M-SD-P	Pole Mount for MOBOTIX MOVE Speed Dome cameras (only in combination with Wall Mount Mx-M-SD-W/WM)
	Mx-M-SD-PM	Pendant Mount Kit 25 cm for MOBOTIX MOVE Speed Dome cameras
	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 for MOBOTIX MOVE Speed Dome cameras; 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 for MOBOTIX MOVE Speed Dome cameras
	Mx-M-SD-WMJB	Wall Mount Junction Box for MOBOTIX MOVE Speed Dome cameras
	Mx-NPA-PoE1A-60W-BT	Network Power Injector 60 W
	Mx-A-ETP1A-2601-SET	Media Converter Set Ethernet (PoE+) – Twisted-Pair

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# Dimensions

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

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

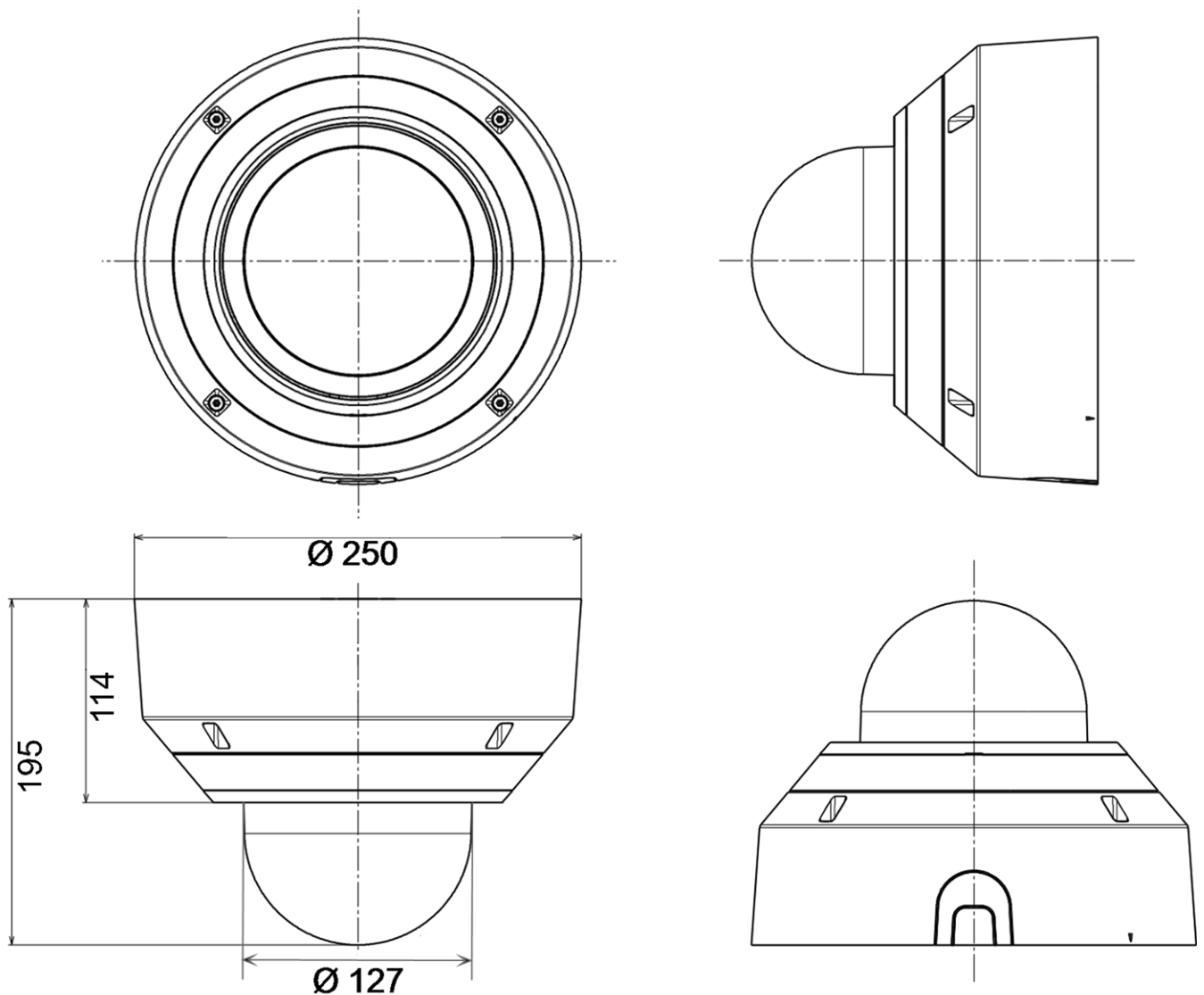


Fig. 1: Vandal Multisensor PTZ Combo 20MP Video Analytics Camera: All measurements in mm

## Further Reading

[Manuals and Quick Installation documents](#)



[Technical Specifications](#)



[MOBOTIX MOVE Installation Hints](#)



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