



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 (Quad-core ARM® Cortex®-A53, 1 GHz) <PTZ>: Ambarella CV25m (Quad-core ARM® Cortex®-A53, 1 GHz)
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)

Lens

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

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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

WDR <Multisensor>: 108 dB max.
 <PTZ>: 144 dB max.

White Balance ATW1/ATW2/AWC

Back Light/High Light Com- BLC (Back light compensation)/HLC (High light compensation)/Off (only when
 pensation Super Dynamic/Intelligent Auto: Off)

Fog Compensation On/Off (only when Intelligent Auto/Auto Contrast Adjust: Off)

Maximum Gain (AGC) Level 0 to 11

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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

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.

Audio Codec

Compression/Encoding G.711/G.726/AAC-LC

Streaming Bi-directional

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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

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
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">▪ 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
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
Housing Color	RAL 9003

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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
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
	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!

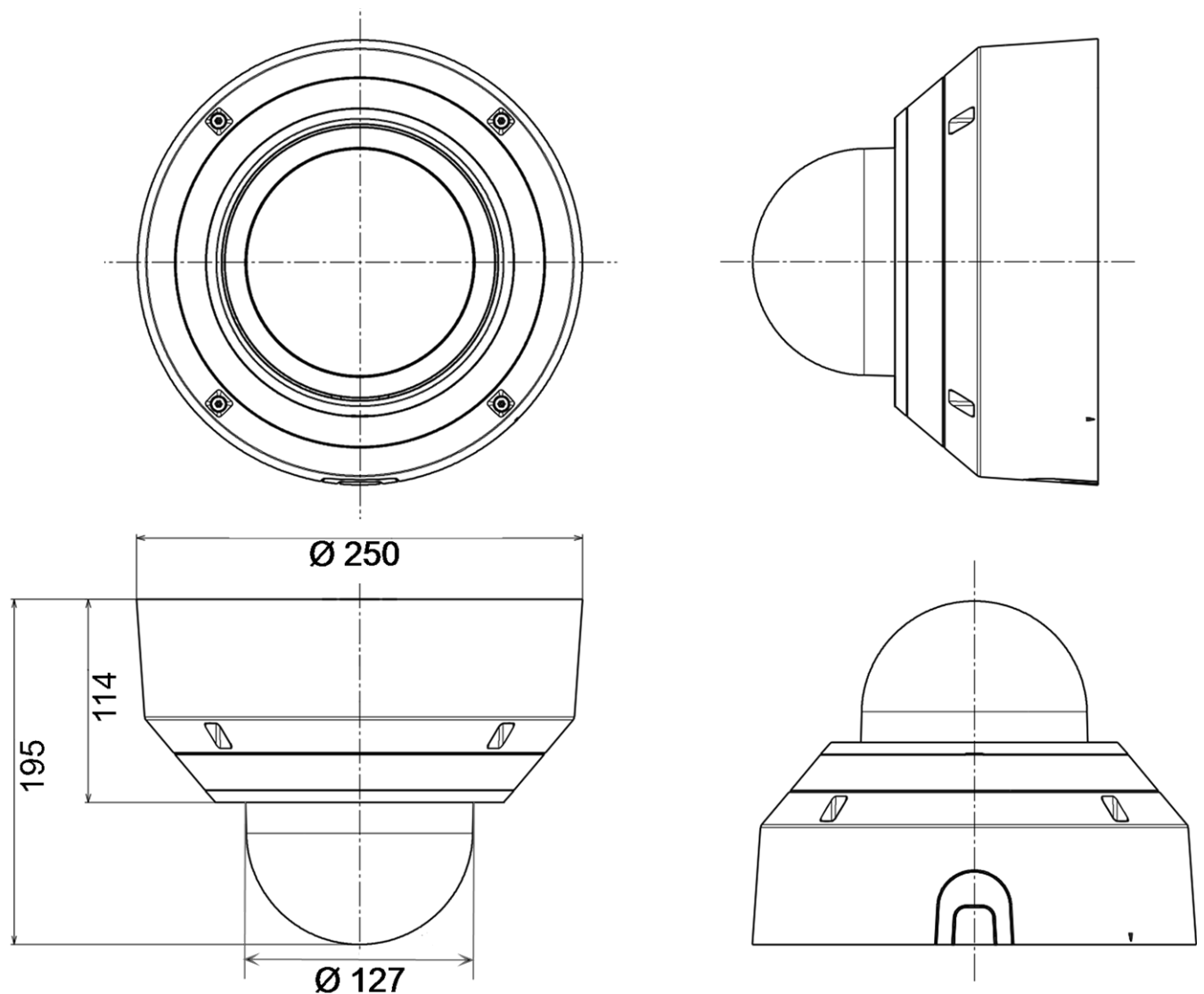


Fig. 1: Vandal Multisensor PTZ Combo 20MP Video Analytics Camera: All measurements in mm

Further Reading

[Manuals and Quick Installation documents](#)



[Technical Specifications](#)



[MOBOTIX MOVE Installation Hints](#)



[MOBOTIX Community](#)



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MOBOTIX AG • Kaiserstrasse • D-67722 Langmeil • Tel.: +49 6302 9816-103 • sales@mobotix.com • www.mobotix.com

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