



# Technical Specifications

## MOBOTIX MOVE 2MP Low-Light Video Analytics Speed Dome

Supported by high-performance DNN processor/SoC in combination with state-of-the-art CMOS video sensor, the outdoor MOBOTIX MOVE 2MP Low-Light Video Analytics Speed Dome is much more than just standard, providing crisp, noise-free and smooth video streaming at full HD 2MP resolution even under extreme low-light conditions. The integrated DNN-based video analytics functions include face and license plate recognition that can be combined with preset PTZ positions to enable a wide variety of 24/7 video surveillance applications. The MOBOTIX EverClear superhydrophilic and self-cleaning nano coating of the dome ensures best image quality even in rain and reduces cleaning efforts and operational costs.

- High light sensitivity: 0.01 Lux color, 0.001 Lux B/W
- 30x motorized zoom/focus lens 4.3 to 129 mm
- WDR up to 130 dB
- Quad streaming H.264/H.265/MJPEG
- Intelligent encoding, smart low-bitrate control
- MOBOTIX MxMessageSystem
- 2D & 3D motion-compensated noise reduction (MCTF)
- ONVIF Profile S/G/T/M support
- Electronic image stabilizer (EIS)
- Auto object tracking, DNN-based (persons, vehicles)
- DNN video analytics (8 VA, Face & ALPR) linkable to PTZ presets & smart event functions
- Smart Event Functions
- microSD/SDHC/SDXC card support up to 1 TB
- Dual power support (IEEE802.3at/AC24V)
- Outdoor protection rate IP66, IK10
- Temp. Range -40 to 55 °C/-40 to 131 °F with heater
- EverClear coating of dome



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High-Quality DNN Edge Video Analytics

Counting	Intrusion	Removed Objects	Sabotage	Face Recognition
				
Abandoned Objects	Stopped Vehicle	Wrong Direction	Loitering	ALPR
				

The latest computer vision technology makes the DNN-accelerated video processing engine efficient at the edge. This integrated engine provides high accuracy, real-time object tracking, and 10 (DNN-based) video analytics functions including ALPR and human face recognition. Moreover, it allows simultaneous detection on multiple objects.

MOBOTIX EverClear Nano Coating

The new, groundbreaking MOBOTIX EverClear coating uses a special nano technology that transforms water droplets into an ultra-thin water film immediately upon impact. This ensures the highest image quality in rain and difficult environmental conditions and reduces maintenance costs due to its “self-cleaning” effect.



Product Information

Product Name	2MP Low-Light Video Analytics Speed Dome
Order Code	Mx-SD2A-230-LL-VA

Image Quality

Image Sensor	2MP 1/2.8” Progressive CMOS IMX662 (SONY STARVIS II)
Effective (Used) Pixels	H x V = 1920x1080 (2MP)

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Pixel Size	2.9 $\mu\text{m}$
Frame Rate (maximum)	<b>WDR on/off:</b> H.265/H.264: 2MP@30 fps MJPEG: 1080p@30 fps
Dome Coating	Superhydrophilic MOBOTIX EverClear nano coating transforms water droplets into an ultra-thin water film upon impact. The coating ensures best image quality in rain and difficult external conditions and it reduces reflections and noise in low-light scenarios. EverClear is dirt-repellent and increases the stability as well as the scratch-resistance of the dome, further reducing maintenance efforts. Coating endurance up to 3 years depending on environmental conditions and cleaning treatment.

## Hardware Design

Processor	Ambarella CV25
Memory	RAM: 1024 MBytes, FLASH: 512 MBytes

## Lens

Minimum Illumination	Color: 0.01 Lux B/W: 0.001 Lux F1.6, AGC=on, 30 IRE, 1/1 s
Lens Characteristics	Zoom Lens: Zoom, Auto Focus, P-IRIS, Auto-IRIS Focal Length: 4.3 to 129 mm Aperture: F1.6 – F4.7 Horizontal Field of View: 59.3° (Wide), 2.3° (Tele) Vertical Field of View: 34.9° (Wide), 1.4° (Tele)

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#### Camera

Shutter Speed (Auto)	1 to 1/10000 s
Shutter Speed (Manual)	WDR: 1/37500 s Linear: 1/75000 s
Shutter Priority Mode	Up to 1/45 s
WDR	Up to 130 dB
Electronic Image Stabilizer (EIS)	Yes
Auto Object Tracking	On/off (object-based DNN algorithm: humans/vehicles selectable)
Zoom	Optical: 30x, Digital: 10x
Image Settings	Color, Brightness, Sharpness, Contrast, White Balance, Exposure Control, 2DNR, 3DNR, NR by Motion, Masking, Text Overlay
Image Rotation	90°, 180°, 270°
Servo Feedback	Yes

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#### PTZ Features

Preset positions	Up to 256 positions, 1 Home position
Sequences	Up to 8 sequences with 64 preset positions each
Cruise Paths	Up to 8
Auto Pan Paths	Up to 4
Display Position	Pan/Tilt degrees can be displayed in live image
Pan Range	360° endless
Tilt Range	-10° to +100°
Pan Speed	Manual Pan Speed: 0.1°-90°/s Preset Pan Speed: 400°/s
Tilt Speed	Manual Tilt Speed: 0.1°-55°/s Preset Tilt Speed: 300°/s
Joystick/Keypoint Control	RS485 protocols DSCP, Pelco-D and Pelco-P
Video Analytics	Presets can be combined with 1 selectable integrated video analytics feature

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## Video Codec

Compression/Encoding	H.265/H.264/MJPEG
Streaming	Up to 4 individually configurable streams in H.264/H.265/MJPEG; configurable resolution, frame rate, bandwidth LBR/VBR/CBR in H.265/H.264.

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## Audio Codec

Compression/Encoding	G.711/G.726/AAC/LPCM
Streaming	Bi-directional
Audio Input	Line In Max. 2.28 V <sub>pp</sub> for line signal Input impedance: 33 kΩ
Audio Output	Line Out Output resistance: 220 Ω Output voltage: 1 V <sub>rms</sub>

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## Cyber Security Features

Password Protection	Yes (including “forced” password change during initial setup)
IP address filtering	Yes (to restrict unauthorized access based on IP addresses)
IEEE 802.1X network access control	Yes (for advanced network security and authentication)
Digest authentication	Yes (for secure user authentication)
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 (TLS 1.2 default, TLS 1.0/1.1 optional selectable)
User and Group Management	Yes (for fine-grained access control)
VPN	Yes (to establish secure network connections)

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Digitally signed firmware	Yes (to prevent firmware file tampering)
RSA encryption	Yes (to support stronger ciphers; supported: RSA (2048 bits), AES-128, AES-256, SHA-256, SHA-384)

Network

Interface	10/100 Mbps Ethernet
Supported Protocols	ARP, PPPoE, IPv4/v6, ICMP, IGMP, QoS, TCP, UDP, DHCP, UPnP, SNMP, SMTP, RTP, RTSP, HTTP, HTTPS, FTP, NTP, DDNS, SMBv2, VPN
ONVIF conformance	Supports profiles S/G/T/M
Supported Browsers	All current browsers (e.g. Microsoft Edge, Firefox, Google Chrome, Opera, etc.) are supported.

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System Integration

Base Video Analytics	<ul style="list-style-type: none"><li>■ Motion detection</li><li>■ Audio detection</li></ul>
Enhanced Video Analytics (linkable to PTZ presets)	<ul style="list-style-type: none"><li>■ Abandoned objects</li><li>■ Intrusion (object classification)</li><li>■ Sabotage</li><li>■ Wrong direction</li><li>■ Loitering (object classification)</li><li>■ Object counting (object classification)</li><li>■ Object removal</li><li>■ Stopped vehicle (object classification)</li></ul> <p>2 analytics functions can be activated simultaneously</p>

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## MOBOTIX MOVE 2MP Low-Light Video Analytics Speed Dome

DNN (Deep Neural Network)  
based video analytics  
(linkable to PTZ presets)

- Face Recognition (incl. gender & age estimation)
- Number Plate Recognition – supported countries:  
Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Ireland, Israel, Italy, Japan, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Luxembourg, Moldova, Monaco, Montenegro, Netherlands, North Macedonia, Norway, Poland, Portugal, Romania, Russia, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Taiwan, Turkey, Ukraine, United Kingdom, Uzbekistan, Vietnam

Event Triggers

- External input
- Analytics
- Network failure detection
- Periodical event
- Manual trigger
- MxMessageSystem messages

Event Actions

- External output activation
- Video and audio recording to edge storage
- File upload: FTP, network share and email
- Notification: HTTP, FTP, email
- MxMessageSystem messages

## General

Housing material	Metal and plastic
Power Requirements	PoE+ IEEE802.3at, class 4, max 25.5 watt AC24V, max 29.04 watt, max 53.24 VA
PoE Modes Supported	Mode A or Mode B

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Connectors	<div><div>■ RJ45</div><div>■ 4 x Alarm in, 2x Alarm out, Audio in, Audio out, RS485 terminal block</div><div>■ AC24V terminal block</div><div>■ CVBS connector (available with max. 2 activated streams)</div></div>
Video Storage	Micro SD/SDHC/SDXC card support up to 1 TB (using SD card adapter), Support for recording to NAS, MOBOTIX HUB, MOBOTIX MOVE NVR
Remotely Upgradable	Yes
Environmental Protection Class	IP66/IK10
Operating Temperature	−40 to 55 °C/−40 to 131 °F with heater
Relative Humidity	10 to 90 % non-condensing10 to 95 % non-condensing
Storage Conditions	−20 to 70 °C/−4 to 158 °F−40 to 60 °C/−4 to 158 °F
Approvals	EMC: CE/FCC Safety: LVD
MTBF	50,000 hours
Warranty	5 years; mechanically wearable parts (motor, gears, belts, etc.) excluded
Dimensions	ø 210 x 294.5 mm
Weight	3100 g

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

Alarm Input/Output Current and Voltage

Alarm In	Alarm Out
5 V with 10 kΩ pull up, 50 mA	400 V DC/AC, 120 mA



## 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.

DORI Level	Detection		Observation		Recognition		Identification	
Camera	Wide	Tele	Wide	Tele	Wide	Tele	Wide	Tele
Mx-SD2A-230-LL-VA	71 m/ 233 ft	1768 m/ 5801 ft	28 m/ 92 ft	702 m/ 2303 ft	14 m/ 46 ft	354 m/ 1161 ft	7 m/ 23 ft	177 m/ 581 ft

## Accessories

Picture	Order Code	Description
	Mx-A-SD-DBC-EC	Clear replacement dome with EverClear coating for 2MP Low-Light Video Analytics Speed Dome
	MX-A-SD-DBT-EC	Tinted replacement dome with EverClear coating for 2MP Low-Light Video Analytics Speed Dome
	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-UPOE1A-60W	UPoE 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](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!

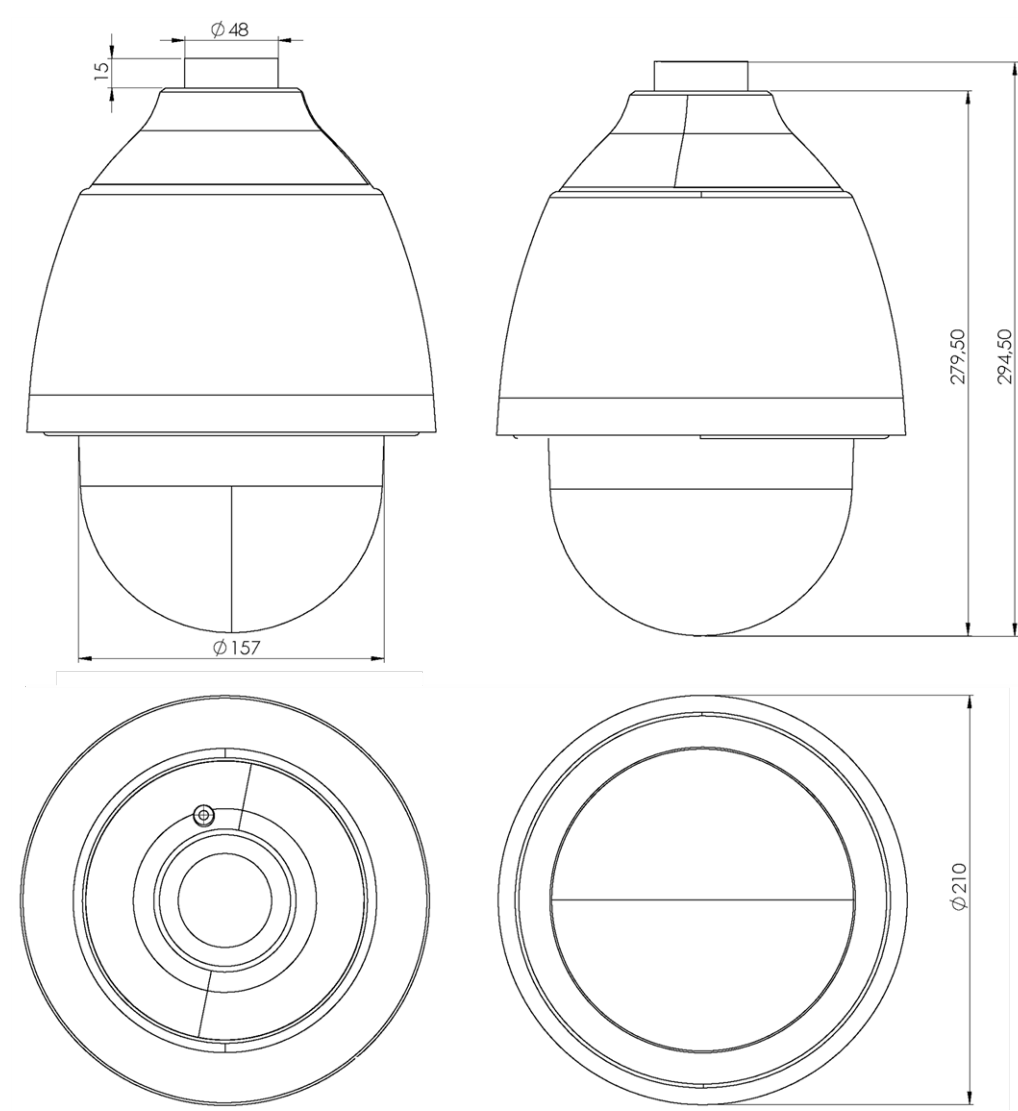


Fig. 1: 2MP Low-Light Video Analytics Speed Dome: All measurements in mm

## Further Reading

[Manuals and Quick Installation documents](#)



[Video Analytics Manual](#)



[Technical Specifications](#)



[MOBOTIX MOVE Installation Hints](#)





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