Technical Specifications

MOBOTIX MOVE 2MP Low-Light Flush-Mount Video Analytics Speed Dome

Supported by high-performance DNN processor/SoC in combination with state-of-the-art CMOS video sensor, the indoor MOBOTIX MOVE 2MP Low-Light Flush-Mount 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.

- 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)
- Temp. Range –40 to 55 °C/-40 to 131 °F

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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.

Product Information

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

Image Quality

Image Sensor	2MP 1/2.8" Progressive CMOS IMX662 (SONY STARVIS II)
Effective (Used) Pixels	H x V = 1920x1080 (2MP)
Pixel Size	2.9 μm
Frame Rate (maximum)	**WDR on/off:** H.265/H.264: 2MP@30 fps MJPEG: 1080p@30 fps

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)

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

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/Keyport Control	RS485 protocols DSCP, Pelco-D and Pelco-P
Video Analytics	Presets can be combined with 1 selectable integrated video analytics feature

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.

Audio Codec

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

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)
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)
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.

System Integration

Base Video Analytics	- Motion detection - Audio detection
Enhanced Video Analytics (linkable to PTZ presets)	- Abandoned objects - Intrusion (object classification) - Sabotage - Wrong direction - Loitering (object classification) - Object counting (object classification) - Object removal - Stopped vehicle (object classification) 2 analytics functions can be activated simultaneously
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 17.71 watt AC24V, max 17.10 watt, max 32.67 VA
PoE Modes Supported	Mode A or Mode B
Connectors	- RJ45 4 x Alarm in, 2x Alarm out, Audio in, Audio out, RS485 terminal block - AC24V terminal block - CVBS connector (available with max. 2 activated streams)
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
Operating Temperature	–40 to 55 °C/-40 to 131 °F
Relative Humidity	10 to 90 % non-condensing
Storage Conditions	–20 to 70 °C/–4 to 158 °F
Approvals	EMC: CE/FCC Safety: LVD

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MTBF	50,000 hours
Warranty	5 years; mechanically wearable parts (motor, gears, belts, etc.) excluded
Dimensions	ø 212 x 264 mm (overall)
	ø 212 x 103 mm (visible)
Weight	2700 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-FM-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 Flush-Mount Video Analytics Speed Dome
	MX-A-SD-DBT-EC	Tinted replacement dome with EverClear coating for 2MP Low-Light Flush-Mount Video Analytics Speed Dome
	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 > Support > Download Center > Marketing & Documentation > Drilling Templates**.

CAUTION! Always print or copy the drilling template at 100% of the original size!
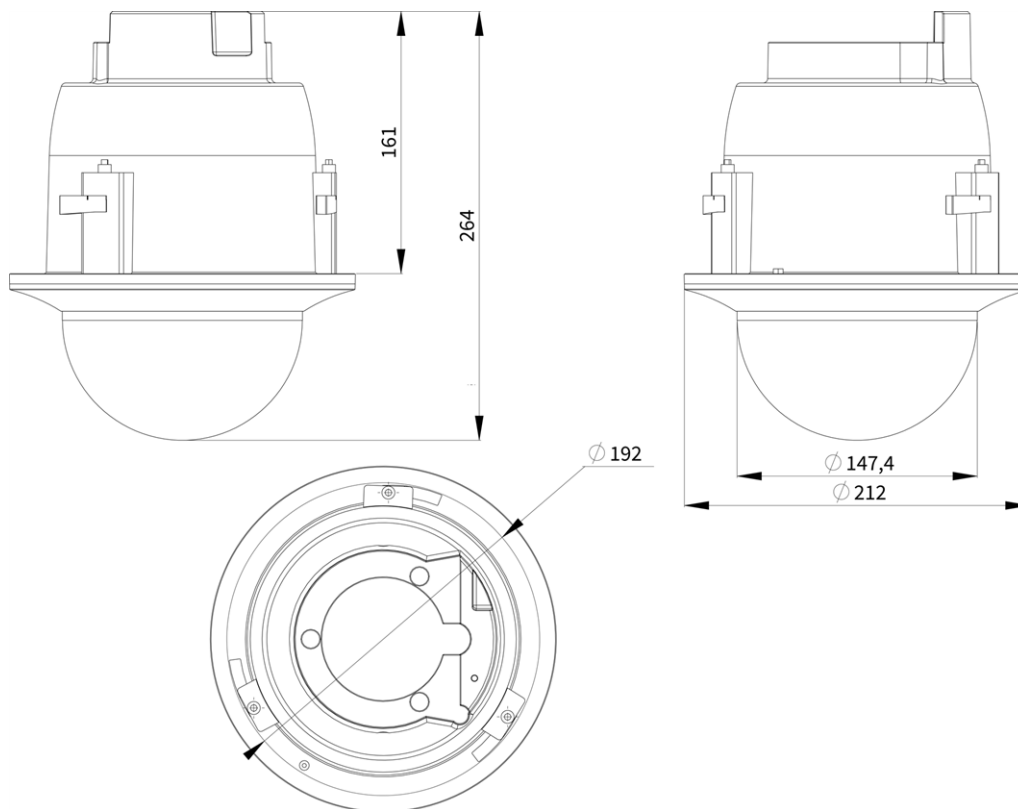
Fig. 1: 2MP Low-Light Flush-Mount Video Analytics Speed Dome: All measurements in mm

Further Reading

Manuals and Quick Installation documents

Video Analytics Manual

Technical Specifications

MOBOTIX MOVE Installation Hints

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